RUBE GOLDBERG

(1884-1970) was a Pulitzer Prize winning cartoonist. He was most famous for his wild and wacky chain reaction machines. If you're not familiar with Rube Goldberg's cartoons, go to the "Gallery" section of rubegoldberg.com. See Rube's biography at rubegoldberg. com/about

A Rube Goldberg Machine (RGM) is a "machine" which, through a series of complicated (and hopefully really funny) steps, accomplishes a simple task. A Rube Goldberg machine uses everyday items (mostly junk!), typically tells a story and, most important of all, they make you LAUGH.

Millions of makers, nerds and geeks make Rube Goldberg Machines. They can't help themselves! The great news is that while they're having fun creating wildly complex solutions to simple, everyday tasks they also happen to be incorporating elements of Science, Technology, Engineering and Math (with Art and design thrown into the mix!) – a community RGM has the added benefit of getting wonderful DIYers to work together as a team to build a great Machine – and then when they complete their machine, they get to link up to other team's machines – creating a massive, and massively connected string of incredible events!

THE RUBE GOLDBERG COMMUNITY CHALLENGE

The first annual Rube Goldberg Community Challenge, sponsored by Maker Bolder and BLDG 61, will take place this fall. The Team Presentation event is scheduled for Dec. 10, 2017

Maker Bolder has created a five-week curriculum that is free to any school, teacher, camp provider, family or team that wants to create a machine. What follows are the rules and guidelines. If you have any questions, please don't hesitate to email us at: info@makerbolder.com.

1. Team Rules and Guidelines

    a. Every team must have an adult Team Leader 18 years of age or older with a valid email address and cell phone number

    b. Each team must be comprised of at least three members and no more than 12 members.

    c. Each team must have more youth members than adult members. Youth: elementary or secondary school aged person (K-12); adult: Older than school-aged person.

2. This is a FUN event that is intended to be youth driven

    a. Youth should drive the design and build of the machine

    b. Youth should be the primary set up workers for the machine

    c. People who are not on the team may help transport the machine. Safety is always the first priority. For scenarios that require building and lifting large pieces of a machine into place, or using tools that require adult assistance, adult help is acceptable.
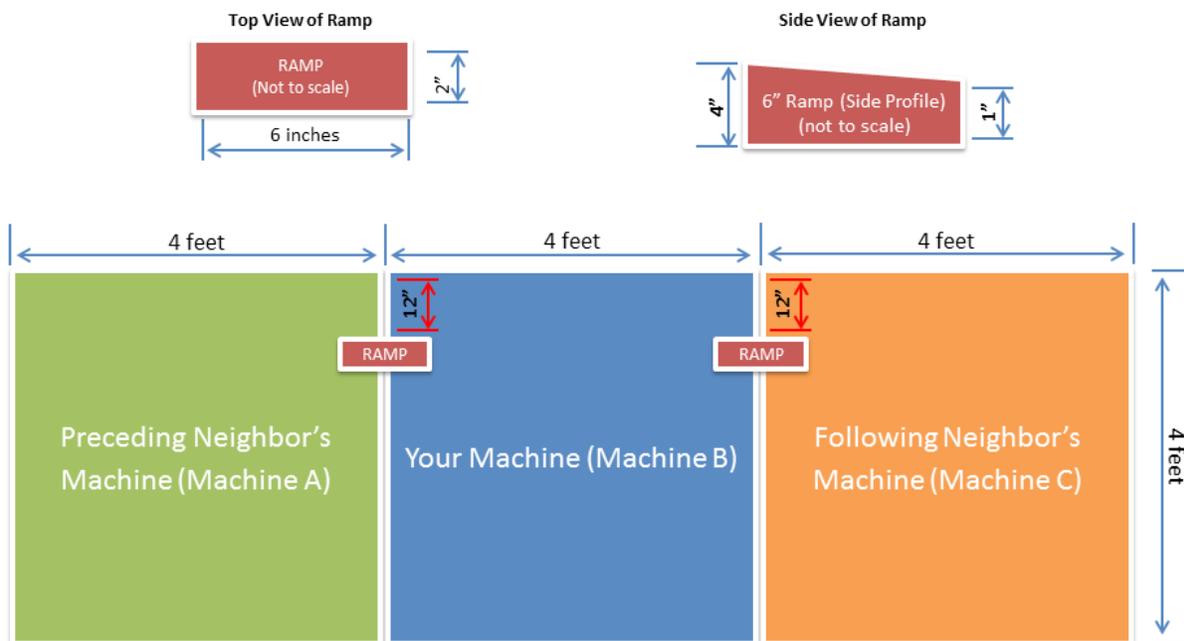
SPECIFICATION	NOTES	MINIMUM	MAXIMUM
Tools	Safety is the number one priority. As such, no flame/open fire is allowed, and no toxic materials or dangerous gasses.		
Liquids	Water and/or water soluble paints (think children's acrylic/watercolor paints) are permitted		
Steps	The number of steps or transitions in your machine	5	50
Simple Machines	Must incorporate at least three different simple machines.		
Machine dimensions	You will be building your machine on a 4x4 piece of plywood (you need to supply this). No item in your machine can launch outside of your machine, or extend beyond your machine on any side. Your machine can be up to 6' tall.	None	4'd x 4'w x 6'h
Machine Introduction	Each team will have the opportunity to present their team to a panel of judges to be considered for fun prizes. Your presentation should involve your entire team in some way.		5 minutes
Machine run time	The time it takes for your machine to complete all of its moves or transitions	1 minute	3 minutes
Reset time	We will run the full machine several times at STEAM Fest. It must be possible to reset your machine in 20 minutes. It is important to note, you will have access to your machine on two sides only (see diagram), for reset, you must be able to reset your machine without disrupting nearby machines.		20 minutes
Noise	Bonus points if your machine makes music or fun noise. Your machine, however, may not make noise above 100 dB. Any noise your machine makes must not continue after the end of your runtime (i.e. can't extend over the top of the next machine's time)		
Access to Power	Each machine will have access to one standard 3-pin power outlet or surge protector plug. You will need to allow for a minimum of 10' from your machine to the plug. (i.e. bring an extension cord / power cord if you need power)		
Live animals or people in your machine	No living organisms, animals, or humans, may be part of your machine.		
Language	All language must be appropriate for a mixed-age audience		
Corporate logos	Logos are allowed and may be used within the machine footprint, on team clothing, etc. All copyright permissions rest with the team.		

PLATFORM SPECIFICATIONS

Your machine will be part of a series of machines that connect together to form one long Community Rube Goldberg Machine. All machines will be built on 4' x 4' pieces of 1/2" plywood for stability and consistency. The transition between machines will happen at the connection points (red boxes which are ramps).

Your machine will start when a golf ball rolls down a ramp onto your platform. The Preceding team will build the ramp to hold the golf ball and deliver it from their platform to yours.

a. One ramp will be provided to each team – the provided ramp will be your "entrance" ramp (i.e. the one that brings the golf ball on to your platform)

b. The ramp shall be 4" high at the start and 1" high at the end.

c. The ramp will be 6" long, and 2" wide.

d. The ramp will be placed to end exactly 3" into your platform and the closest edge of the ramp will be exactly 12" from the "top" edge of your platform. This means that the ramp will also extend onto your neighbor's platform 3".

Top View of Ramp

RAMP
(Not to scale)

2"

6 inches

Side View of Ramp

4"

6" Ramp (Side Profile)
(not to scale)

1"

4 feet | 4 feet | 4 feet

12"

RAMP

12"

RAMP

Preceding Neighbor's Machine (Machine A)

Your Machine (Machine B)

Following Neighbor's Machine (Machine C)

4 feet

TEAM PRESENTATION

Your team will have five minutes to make a presentation describing your creation process and the components of your machine. It is encouraged that every member of your team play a role in the presentation.

A team of panelists will evaluate your machine, and your presentation to award fun prizes in a variety of categories.